

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

|  |   |   |
|--|---|---|
| Applicant's or agent's file reference<br><b>30A-92669</b>  | <b>FOR FURTHER ACTION</b>                                       | See Form PCT/IPEA/416                               |
| International application No.<br><b>PCT/EP2004/000568</b>  | International filing date (day/month/year)<br><b>23.01.2004</b> | Priority date (day/month/year)<br><b>29.01.2003</b> |
| International Patent Classification (IPC) or national classification and IPC<br><b>F01L 1/32, 9/04</b> |   |   |
| Applicant<br><b>COMPACT DYNAMICS GMBH</b>  |   |   |

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

|                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

|                                       |                                   |
|---------------------------------------|-----------------------------------|
| Date of submission of the demand      | Date of completion of this report |
| Name and mailing address of the IPEA/ | Authorized officer                |
| Facsimile No.                         | Telephone No.                     |

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/000568

Box No. I

Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-4 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 2-8 \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1 \_\_\_\_\_ received by this Authority on 26.08.2004 with the letter of 26.08.2004
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- sheets \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, nos. 1 \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/000568

| Box No. V   | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |     |     |
|---|---|-----|-----|
| 1. Statement  |   |     |     |
| Novelty (N)   | Claims  | 1-8 | YES |
|   | Claims  |     | NO  |
| Inventive step (IS)   | Claims  | 1-8 | YES |
|   | Claims  |     | NO  |
| Industrial applicability (IA)   | Claims  | 1-8 | YES |
|   | Claims  |     | NO  |
| 2. Citations and explanations (Rule 70.7)   |   |     |     |
| 1. Closest prior art:   |   |     |     |
| This report makes reference to the following document:  |   |     |     |
| D1: FR 2797297 (RENAULT), 9 February 2001 (2001-02-09)  |   |     |     |
| Document D1 is considered to constitute the prior art closest to the subject matter of claim 1 and discloses (cf. page 3, lines 12-15; page 6, lines 13-16; page 7, lines 7-10; claims 1-3; figure 1; the references in parentheses are to that document):  |   |     |     |
| an electrically actuated valve arrangement (19) for opening and closing a working chamber of an internal combustion engine in a controlled manner, having an electric linear drive which causes a valve shaft (2) of the valve arrangement (19) to move in the longitudinal direction between an open position and a closed position of the valve arrangement (19) depending on electric control signals. |   |     |     |

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

**2. Problem addressed by the invention:**

The present invention can therefore be considered to address the problem that, in these electromagnetically driven lift valves, the linear drives cannot cause the valve shaft to rotate.

**3. Solution according to the invention:**

The arrangement for rotating the valve has at least one actuation element and an engagement element that co-operates with the actuation element, one of these elements being secured to the valve shaft **in a rotationally fixed manner**, and the other of these elements being arranged **in a stationary manner** relative to the movable valve shaft in such a way that, before the open position or the closed position of the valve shaft is reached, the engagement element and the actuation element engage one another and superimpose a rotary motion on the longitudinal motion of the valve shaft.

**4. Advantage of the invention:**

The invention thus achieves a simple valve rotation device with few additional parts.

The remaining functional characteristics of the valve (mass to be moved, influence on fluid stream insofar as one of the elements is located in the fluid stream controlled by the valve arrangement) are not affected or only to a slight extent.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
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## 5. Dependent claims 2-8:

Claims 2-8 are dependent on claim 1 and therefore also meet the PCT novelty and inventive step requirements.